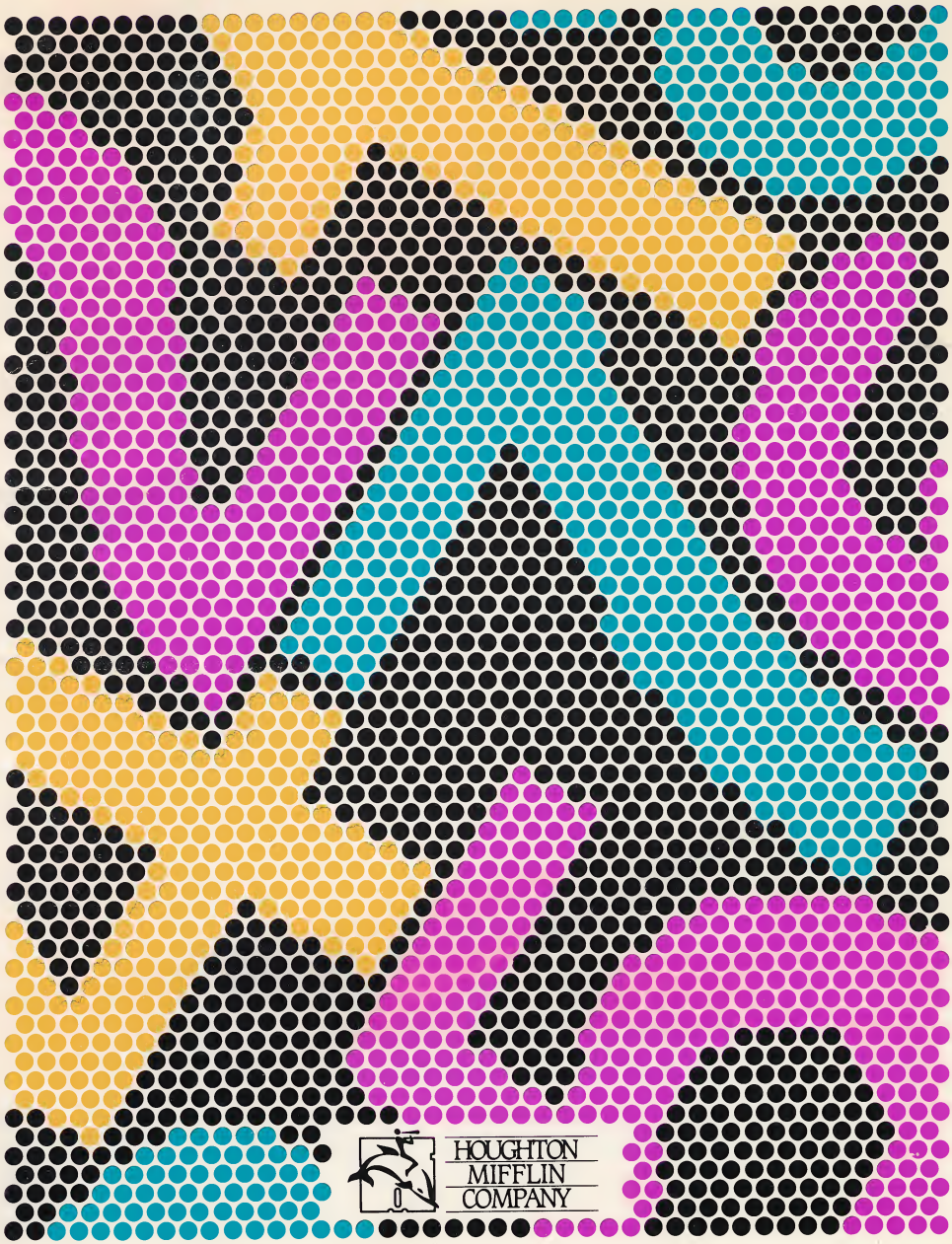
COMPUTATIONAL SKILLS PROGRAM

GUIDE



COMPUTATIONAL SKILLS PROGRAM

Guide

Houghton Mifflin Company
Educational Software Division

Arlington, Texas • Hanover, New Hampshire • Bloomingdale, Illinois

Author Bryce R. Shaw, Former Director of
Mathematics and Computer Systems
Flint Community Schools, Michigan

Consultant Richard Monnard, Mathematics Consultant
San Mateo, California

Cover design by Dick Hannus
Design and Production by PC&F, Inc.

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Introduction

The *Computational Skills Program (CSP)* identifies 105 skills that are essential for mathematics competency. *CSP* is a supplementary, instructional mathematics program, uniquely designed and developed to teach these skills to students who are in the process of learning them as well as to those students who failed to learn or have forgotten them. *CSP* provides an instructional system that enables individuals to improve their proficiency in the computational skills most needed in adult life and continuing study.

CSP is based upon validated concepts and provides a sequential system for step-by-step, managed learning. The program is structured around precisely identified skills, combining a clear teaching model and a series of practice exercises specific to the level of difficulty. *CSP* is designed to meet individual instructional needs in the regular classroom, resource room, mathematics laboratory, or as a complete self-help program.

CSP has two important qualities that make it unique as an instructional program:

- Its organization and components are based upon extensive research and evaluation.
- It accurately diagnoses each individual student's computational skill weaknesses, and then teaches precisely to those weaknesses.

CSP is based upon a program that has been used by students and teachers over many years. More than 90,000 students and 3,400 teachers have participated in the development and successful evaluation of the program. The resources of large and small school districts throughout the country have contributed to its design and development. Their input has made possible a continuing improvement in the program's instructional implementation and effectiveness.

Tailoring an individualized program for the student is a major problem in mathematics instruction. Most of the available programs needlessly force students to review known skills or to study and struggle through exercises for which prerequisite skills have not yet been mastered. *CSP* uniquely solves this problem.

The 105 skills in the program are organized into twelve strands, each composed of related skills grouped in order of their difficulty. This grouping enables the program to:

1. Diagnose a student's areas of weakness on a skill-by-skill basis.
2. Provide appropriate instruction based on precise assessment of the student's individual weaknesses.
3. Provide appropriate sequential practice in learning with coordinated reinforcement in skill development.
4. Record and report students' activity and progress on a skill-by-skill basis.

Each strand begins and ends with survey and mastery tests that enable the student and teacher to identify precisely which skills the student needs to learn and which skills he or she already knows. The student can then use available instruction time to work with appropriate lessons that concentrate on his or her areas of need.

The twelve strands are grouped into the following seven units:

I.	Strand 1:	Whole Numbers Addition
	Strand 2:	Whole Numbers Subtraction
II.	Strand 3:	Whole Numbers Multiplication
	Strand 4:	Whole Numbers Division
III.	Strand 5:	Fractions Basic Skills
IV.	Strand 6:	Fractions Addition
	Strand 7:	Fractions Subtraction
V.	Strand 8:	Fractions Multiplication
	Strand 9:	Fractions Division
VI.	Strand 10:	Decimals
VII.	Strand 11:	Rates, Ratios and Proportions
	Strand 12:	Percents

A list of specific skills included in each strand begins on page 27.

Instructional Components

Strand Disk

Each strand disk consists of four instructional components: the Survey Test, Lesson, Review, and the Mastery Test. Each strand is "bracketed" by the survey test and the mastery test. Instruction within the strand is organized around precisely identified skills, in each of which a clear teaching model is combined with three exercises developed by levels of difficulty. Reviews provide reinforcement for groups of learned skills.

The structure and objective of each of the four instructional components are described below. Instructions on the actual operation of the program on the strand disk begin on page 13.

Survey Test

Taking the strand's survey test is the first step in *CSP*'s computerized instructional process. The survey test is designed to diagnose a student's computational weaknesses on a skill-by-skill basis. The organization of the test is parallel to that of the skills in the strand. Since skills are arranged in increasing order of difficulty, a student's need for learning is pinpointed by the first skill for which a student fails to demonstrate mastery.

In the survey test, the computer generates two problems at the highest level of difficulty for each skill. If the student answers the first problem correctly, the second is by-passed, and the test proceeds to the next skill. If the first problem is answered incorrectly, the second problem from the same skill is presented. If that problem is answered correctly, the test proceeds to the next skill. An incorrect answer on the second problem from that skill ends the survey test, and instruction for the student should begin with the failed skill. It is possible for a student to answer successfully a problem from each skill in the strand. This indicates that the student has good mastery of all skills and may not require further instruction in that strand.

Each problem in the survey test is generated at random, according to the precise criteria that identify each skill. Thus, every student receives a different version of the survey test, while the problems remain at the same level of difficulty.

Lesson

The lesson component of the strand disk provides instruction appropriate to the needs of the student. There are three lessons available for each skill in the strand, each of which combines a teaching model and a practice exercise. Instruction should begin with the first lesson that has been diagnosed by the survey test and should progress sequentially through successive skills in the strand.

The teaching model for a skill presents the student with a clear, precise tutorial providing instructional help to work on the exercises within each skill. While working on the exercises, the student can refer back to the teaching model for assistance.

The three practice exercises within each skill increase in level of difficulty—a progression that allows the student to take small steps in mastering each skill. Since the last exercise in each skill is the most difficult, proficiency with the last exercise is necessary before the student can proceed to the next lesson in the strand.

Each exercise presents an appropriate, predetermined number of practice problems related to the skill. Problems are randomly generated according to specific criteria for the skill and difficulty level. Help is available to the student any time he or she is working on an exercise. A request for help invokes the lesson's teaching model, which the student may study at his or her own pace. If the student misses two consecutive problems in the exercise, the teaching model is automatically presented.

Review

Each strand contains two, three, or four reviews, each covering a small block of consecutive skills in the strand. Reviews are designed to reinforce skills already learned and to substantially improve retention of those skills. A review is taken as soon as the student has progressed through all of those skills covered by that review—before the student proceeds to the first lesson in the next group.

A review progresses sequentially through the skills it includes. Two problems from each skill are generated: one from the second exercise level and one from the third exercise level. While working on either problem, the student may request help from the teaching model.

Mastery Test

When the student has progressed through the lessons and reviews to the end of the strand, he or she takes the mastery test. Like the survey test that opened the strand, the mastery test is based on the number of skills in the strand and is structured sequentially in a skill-by-skill format. The advantage of this parallel testing is that the mastery test may indicate some area of weakness that remains for the student. Should this occur, a recycling of instruction is necessary and the student should retake the survey test.

The mastery test consists of one problem, at the highest level of difficulty for each skill in the strand. As in the survey test, the problems are generated randomly so that each student receives a different version of the test.

Management Disk

A *CSP* management disk, which is included in each binder, is designed to aid the teacher by keeping track of students' progress through the strands. The management disk can accommodate up to 40 students; however, it may be copied to allow for more students or for multiple groups.

The management system allows the teacher to add students to the system, to enter students' scores on individual *CSP* assignments, and to generate a printed report of students' status. The teacher need only enter a student's raw score on an assignment; the management system automatically evaluates mastery or failure of the assignment, based on a mastery level of 80% correct. The status report, which may be displayed on the computer screen or, optionally, printed as hard copy, shows at a glance which skills have been mastered in each strand and shows a student's next assignment in the strand.

Instructions on how to operate the program on the management disk begin on page 17.

Teacher Materials

Each *CSP* binder contains supplementary printed materials that can be used by the teacher and student with the program.

Skill Materials

For each skill of each strand, there are four pages of related materials. The first page provides the teacher with a summary description of the skill. The general learning objective for the skill is given, and the levels of difficulty for the three exercises within the skill are precisely defined. The first page also describes the tutorial component of each computer lesson: the skill's teaching model.

Following the skill summary page are three pages of practice problems, one page for each level of exercise in the skill. At the teacher's discretion, these exercise sheets may be photocopied and assigned as seat work or homework. If the *CSP* management program indicates that a student needs help with a particular skill, the assignment of this supplementary written work is recommended.

An exercise sheet for each review in the strand is also included and may be reproduced and used at the teacher's option.

Answer keys are provided for all exercise sheets.

Placement Test

A written placement test is included with each binder and is designed to be photocopied for classroom use. The test, covering all strands included in the binder, is designed to evaluate a student's computational strengths and weaknesses on a skill-by-skill basis. Each skill is represented by three test problems, one for each level of difficulty in the skill. Mastery of the skill is achieved when a student answers all three problems correctly. The complete method for interpreting the results is included with the test.

Two versions of the placement test, Form A and Form B, are provided. Each tests the same skills, but the actual problems are different. It is recommended that one version should be used to determine the appropriate level at which a student should start the *CSP* instructional process, while the other version should be used to confirm mastery after all skills have been studied.

Answer keys for Forms A and B are included in the binder.

Evaluation and Achievement Test

The written *Evaluation and Achievement Test* is an optional component of *CSP* and is not contained in the binder. It is designed for a more broad-based analysis of students' needs. The tests can be ordered either by using the order form in the binder or directly from Houghton Mifflin Company's Educational Software Division.

The *Evaluation and Achievement Test* has two major objectives: to assess a student's area of computational weakness and to measure a student's grade level of achievement in computational skills. The test consists of 105 problems that represent the 105 skills in the twelve strands of *CSP*. Each problem is taken from the second level of difficulty within the corresponding skill. The test is divided into three parts:

- Whole Numbers
- Fractions
- Decimals
  Rates, Ratios and Proportions,
  Percents.

Each of the three parts is timed, with the entire test to be completed in one hour.

There are two versions of the *Evaluation and Achievement Test:* Form A and Form B. Form A is typically given at the beginning of the school year to determine the general areas of a student's computational weakness. A table is provided to translate a student's overall score on the test into a grade equivalent. More specific weaknesses can be determined through analysis of the student's scores within individual strands.

Form B, used as a follow-up to Form A, tests the same skills with different problems, thereby providing a check on a student's progress and possibly indicating new instructional needs. Form B may be administered at appropriate measurement points throughout the school year.

Answer keys and instructions for scoring the two versions of the test are provided.

Planning the Implementation

Implementation of *CSP* can range from a single classroom to an entire school district. Regardless of size, full realization of the program's objectives requires modest, but critical, advanced planning by all personnel who are to be involved. Depending on the setting, curriculum directors, Chapter I supervisors, testing personnel, teachers, principals, and lab managers are among the possible participants in the planning sessions. The sessions could be held under the guidance of a project director chosen by the administration.

Advanced planning should focus on a number of activities and on the assignment of responsibility for their completion. These include:

1. Familiarization programs for involved personnel, covering content, organization, objectives of the program and, to the extent needed, hands-on computer experience with the software.
2. Joint meetings of teachers and the lab manager to define and develop a plan for coordination of efforts.
3. A schedule for computer use that maximizes the student's on-line time and minimizes the disruption of classroom schedules.
4. An orientation program that introduces students to the system and to the routines they are to follow during computer sessions.
5. Decisions on the main use of the program. Is it to be used for reinforcement by students at all ability levels? only for remediation? by students from both elementary and secondary levels?
6. Possible announcements to parents, describing the program and their children's role in it.
7. A decision on which testing program to use for measuring achievement and progress. The *CSP Evaluation and Achievement Test* (described on page 7) may be used, but some districts will want to utilize their existing testing programs.

The Teacher-Lab Manager Team

In many cases, *CSP* will be installed in a computer laboratory, under the direction of a manager. Such a lab customarily serves many classrooms. There, computer-based instruction achieves its maximum effectiveness when the classroom teacher and the lab manager follow a well-defined blueprint for cooperative program implementation.

Although the lab manager's primary function is not teaching, he or she frequently must fill the role of instructor, helping students during computer sessions. (Note: It is not advisable for the manager or anyone else to help a student during the survey and mastery tests. An invalid diagnosis could result.)

To be prepared for the "instructor" role and to give the best support to regular classroom instruction, the lab manager and the individual classroom teachers must be in continuous communication.

The lab manager can also facilitate the effectiveness of *CSP* by motivating the participating students. One key to high motivation is an attractive lab (possibly decorated with student art, posters, and computer-related cartoons) in which there is an orderly following of established routines. High motivation improves student performance and also pays the important dividend of good discipline.

Although the lab manager is responsible for discipline in the computer lab, with planning, that discipline can be maintained chiefly by the students themselves. On their first trip to the lab, students should be introduced to the procedures for entering, working on assignments, and returning to their classes. It is advisable to develop a set of rules and to present these rules positively to the students. Each teacher should also be given a copy of the rules and asked to discuss them with her or his class.

Often, the teacher and lab manager are one and the same, which eliminates the communication problem but otherwise requires one person to wear two, somewhat different hats. The situation also intensifies the need for lab procedures that students understand and can follow on their own.

Special Duties of the Teacher

The classroom teacher is a pivotal person in assuring optimum results from *CSP*. Although the placement and survey tests are

designed to place a student at the appropriate point in the program, and the *CSP* management system can provide subsequent student assignments, their use is not mandatory. It is the classroom teacher who decides upon the overall instructional plan most appropriate to the local needs. He or she may have reasons for electing methods of initial student placement and subsequent skill assignments different from those built into *CSP*.

In addition to using *CSP* placement testing, four major guidelines for teachers to follow in making assignments are:

1. To give a student reinforcement of specific skills that are being taught in the classroom. For example, if a class assignment is division of fractions, the students can be assigned to the *CSP* skills dealing with that topic. Such an assignment can be made at the teacher's discretion and does not require use of the survey test.
2. To assign skills that provide a student with needed practice in an area not currently being taught. For example, if the teacher knows that a student has chronic difficulty with renaming in addition of whole numbers, the appropriate skills can be chosen for practice.
3. To correlate assignments with the local achievement test, assigning each student those skills in which the tests show that help is needed. A teacher who is unsure of a student's precise weakness may ask that the survey test be used to pinpoint the problem areas.
4. To use the school system's standard diagnostic information (criterion referenced) to assign skills. If a student is identified as having difficulty at grade level with a particular skill, assign the skill at a lower level. Students who have attained grade-level mastery may be given assignments at a higher level.

Making assignments is an important way for a teacher to insure profitable sessions for the student. It is recommended that lab managers and teachers prepare a standard student assignment sheet where the teacher writes in the specific work a student is to do at the computer.

Of paramount importance is the teacher's careful analysis of and appropriate follow-up on the records of student performance that are provided by the computer program.

The teacher may want to consider maintaining a "resource binder" for *CSP*. In addition to this guide, the binder could contain schedules for computer use by assigned students and a supply of assignment sheets. The class management disk (see page 5) may also be stored in the resource binder, unless the teacher prefers that it be kept in the computer lab. If the management disk is not used, conventional written records may be stored in the resource binder.

In discussing their plans for implementing *CSP*, the teacher and/or the lab manager need to consider both testing and the assignment of additional practice that is provided by the blackline masters in the program binder. To be decided are such matters as whether paper-and-pencil tests should be administered in the classroom or in the lab and who is responsible for their administration and scoring, and whether the additional practice and review masters should be duplicated and assigned by the lab manager or the teacher.

The Approach to Scheduling

In planning a schedule, five key questions must be answered:

1. How many computers are available?
2. How many hours each day can be devoted to computer sessions?
3. How many students are to be enrolled in the program, and will they be scheduled by class or individually?
4. What is the total on-line time that can be allocated to *CSP* each week?
5. Among the students to be served, how many are above average in achievement? average? below average?

With the answers to the five questions in hand, it is comparatively easy to block out the daily *CSP* sessions, the number and names of students attending each, and the individual teacher's schedule. Initial decisions can be made on whether a student should be given a recommended ten- or a twenty-minute computer session, but the lab manager and the teacher will want to monitor student performances and tailor the length of lab sessions to changing student needs.

Record Keeping

At the end of a computer session, the computer displays a score in the form of a single number; this is the number of correct answers the student gave to problems in the completed lesson. A student progress chart is included with the teacher materials in each binder. The teacher should photocopy the chart and give one to each student for recording his or her scores. The student should then take it back to his or her classroom teacher, who may incorporate these scores in a written record. Alternatively, the scores may be entered into the optional management disk (see page 5). The management disk affords a convenient means of tracking progress by student and by class (or other grouping). Reports can be printed either for administrative use or to inform parents of their child's individual progress.

Program Operation

Starting the Strand Disk

Place the strand disk in the disk drive and close the drive door. Turn on the computer and the monitor. After a few seconds, you should see the initial program screen with the message:

Turn sound [ON] OFF

The box around the word ON indicates that the sound in the program is currently turned on. Sound is used in the lesson and review activities when a student answers a problem correctly and in the on-line help sequences. To turn the sound off, press the right arrow key [→] so that OFF is selected. When the desired mode is selected, press [RETURN].

Selecting the Activity

When [RETURN] is pressed from the initial screen, the activity menu is displayed:

[LESSON]	REVIEW
SURVEY	MASTERY

The box around the word LESSON indicates that the lesson activity is currently selected. If a different activity is desired, the right arrow key [→] is pressed to move clockwise around the choices, or the left arrow key [←] is pressed to move counterclockwise, until the desired activity is selected. When the box is around the proper word, press [RETURN].

If the activity chosen was SURVEY or MASTERY, no further definition of the activity is required and the session begins. If LESSON was chosen, the skill menu is displayed:

Pick a skill:

[1]	2	3	4	5	6
7	8	9	10	11	12

(Note: the number of available skills varies with each strand.)

Skill 1 is always selected initially. To choose a different skill, press the right arrow key [→] to move forward or the left arrow key [←] to move backward until the desired skill is selected. Pressing [ESC] returns the student to the activity menu. When the proper skill is selected, press [RETURN]. The exercise menu is then presented:

```
Pick an exercise:
[1] 2 3
```

Exercise selections are made in the same manner as the skill selections. Once the proper exercise is selected, press [RETURN] to begin the lesson.

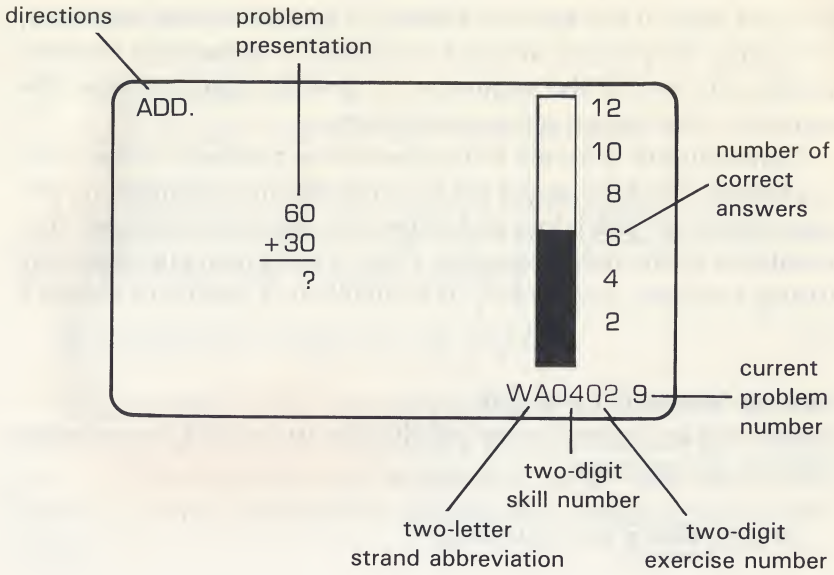
If REVIEW was chosen from the activity menu, the review number is selected instead of a skill number, and [RETURN] begins the review.

Proceeding with the Activity

Screen Format

The activity screen follows a consistent format throughout *CSP*. It contains instructions to the student, the problems, and the activity code. The activity code for a lesson is the two-letter strand abbreviation followed by a two-digit skill number and a two-digit exercise number. For a review, the strand abbreviation is followed by R and the review number. For a survey or mastery test, the abbreviation is followed by SU or MT, respectively. In all activities except the survey, the number of the problem on which the student is currently working is displayed to the right of the activity code. In the lesson and review activities, the screen also shows a graphic representation of the number of problems answered correctly. These graphics provide the student with positive reinforcement for correct answers.

The following illustration shows a typical screen format for a lesson.



Answering Problems

When a problem is displayed, the student enters the answer and presses [RETURN]. At any time before [RETURN] is pressed, the student may erase characters by using the right [→] or left [←] arrow keys. The up arrow key [↑] may be used if the student wishes to restart the answer.

When [RETURN] is pressed, the program accepts and evaluates the answer. In the survey and mastery test, the student is not informed if the answer was correct; the next problem is immediately presented. In a lesson or review, the student receives appropriate feedback. If the student has answered incorrectly, the solution is given. When he or she is ready for the next problem, the student should press [SPACE] to continue.

Tutorial Help

On-line tutorial help is available for the lesson and review activities. The student may request help at any time during the activity by pressing the down arrow key [↓]. Help consists of a sequence of non-interactive screens that take the student step-by-step through a sample problem. After each step, there is a pause, and the student is instructed to press [SPACE] to continue

with the help. If the student wishes to leave the help sequence, [ESC] may be pressed instead of [SPACE]. When the student reaches the end of the sequence, or presses [ESC] to leave the sequence, the lesson or review resumes.

If the student answers two consecutive problems incorrectly in a lesson, the help sequence is automatically initiated. In this case, pressing [ESC] does not allow the student to bypass the remainder of the help sequence. Help is not given automatically during a review, and no help is available in a survey or mastery test.

Turning Sound On and Off

Sound can be turned on or off during an activity by pressing [TAB] at the prompt,

```
PRESS [SPACE] TO CONTINUE.
```

Leaving the Activity Prematurely

If the student wishes to end the activity before completing all the problems, [ESC] may be pressed. In this case, the student is asked,

```
Are you sure? [Y/N]
```

If the student really wishes to end the session, he or she presses the [Y] key to receive a summary of results so far. Pressing any other key causes the activity to continue.

The Summary Screen

There are three ways a session may end:

- The student completes all the problems.
- In a survey, the student misses two consecutive problems and "drops out."
- The student presses [ESC] to end the activity prematurely.

In all of these cases, a summary of the student's performance in the activity is displayed. The summary screen gives the strand, the activity, and the student's score, which is the number of problems the student answered correctly or, in the case of the survey test, the number of skills the student mastered.


```
WHOLE NUMBERS: MULTIPLICATION
SKILL 1 EXERCISE 1
YOUR SCORE IS: 13
PLEASE RECORD THIS ON YOUR PROGRESS CHART.
```

The example above shows a typical summary screen for a completed lesson. If the lesson was ended prematurely by pressing [ESC], the following message appears:

```
YOU HAVE NOT COMPLETED THIS EXERCISE.
```

Pressing [ESC] is the only way to leave the summary screen. When [ESC] is pressed, the activity menu is displayed. At this point, another activity may be selected, or the disk may be removed from the drive before turning the computer and monitor off.

Starting the Management Disk

Place the management disk in the disk drive and close the drive door. Turn on the computer and the monitor. After a few seconds, you should see the initial management screen displaying the last date entered. The cursor is the solid rectangle to the right of the date. To change today's date, press [DELETE] until all characters of the old date have been erased, then enter the new date in the format DD-MMM-YY (example: 09-JAN-86). When the new date is correctly entered, press [RETURN].

The Management Menu

The management menu lists the available management functions; they are:

Add Student Records
Change Student Records
Erase Student Records
Update Student Progress
Report Student Status
List Students
Assign Group Name
Exit Management

Each of the functions is described below. If no students have yet been entered, the Add Student Records function is selected (the cursor is displayed to the left of this function). If you have already entered students, the Update Student Progress function is initially selected. To select a different function, use the up and down arrow keys to move the cursor so that it is positioned to the left of the desired option. When the proper function is selected, press [RETURN].

Add Student Records

Add Student Records allows you to enter students' names and grade levels into the management system. Information is entered for one student at a time. When you choose this option, you will see places on the screen to enter the student's last name, first name, and grade level. These are called fields.

The cursor is initially positioned to the last-name field. Type the student's last name (which may not exceed eighteen characters), using [DELETE] to correct any typing mistakes. When the student's last name has been typed correctly, press the down arrow key. The cursor then moves to the first-name field. Type the first name (maximum of twelve characters), and press the down arrow key. The cursor moves to the grade-level field; you then enter the grade level (maximum of two characters) and, again, press the down arrow key.

The cursor is now positioned to a fourth field, "CONFIRM," at the bottom of the screen. Before pressing any keys here, examine the information you have just entered. If any of the three fields is incorrect, use the up and/or down arrow keys to position the cursor to the end of the information in the field where you entered it. Use [DELETE] to erase characters, right to left, then type the information correctly. Change other fields in this way, if necessary. When you are satisfied with all of the information, use the down arrow key to position the cursor to the "CONFIRM" field, and press [RETURN]. This causes the added student to be stored on the disk.

Add as many students as you like, up to the 40-student maximum, in the same way. When you have finished adding students, press [ESC] instead of entering any information for the next student. You are returned to the management menu. You may return to Add Student Records at any time.

Selecting Students

Five of the management menu functions, Change Student Records, Erase Student Records, Update Student Progress, Report Student Status, and List Students, require that you select the group of students with whom you wish to work. As soon as you press [RETURN] after selecting one of the five functions from the management menu, an alphabetical list of all students is displayed. Students with whom you will work are selected from this list. If you have previously selected a group of students (in any of the five functions), these students are still selected, and their names are highlighted. The cursor is in the same position that it was left in the last time students were selected.

When the cursor is on the right side of the list, you are in "de-select mode"; that is, when the up and/or down arrow keys are used to position the cursor to the right of a student's name, that student is not, or is no longer, selected for inclusion in the group.

To change to "select mode," press the left arrow key. In select mode, using the up and/or down arrow keys to position the cursor to the left of a student's name selects that student for inclusion in the group. The name is highlighted when it is selected. The right arrow key is used to change from select to de-select mode. When the desired group of students has been selected, press [RETURN] to begin working in the function you have chosen.

Change Student Records

Change Student Records allows you to change one or more student's last name, first name, and/or grade level. When you choose this function and have selected the desired students as described above, the last name, first name, and grade level of the first student in the group are displayed. The cursor is initially positioned at the end of the student's last name as it currently stands. If you wish to change the last name, use [DELETE] to erase characters right to left, then type the new last name. If you wish to change other fields, use the up and/or down arrow keys to position the cursor to the end of the field, and change the information in the same way. When you have made all necessary changes, use the down arrow key to position the cursor to the "CONFIRM" field, and press [RETURN]. This stores the

changes on the disk, and the program proceeds to the next student in the selected group.

The above procedure is repeated for each student in the group, in alphabetical order. When all students in the group have been changed, you are returned to the management menu. If you wish to return before you have changed all student records in the selected group, press [ESC].

Erase Student Records

Erase Student Records allows you to delete the records of one or more students from the management system. When you choose this function, you must select the students you wish to erase, as described previously. You are then asked, at the bottom of the screen, to verify that you really do wish to erase the selected students. Type "YES" and press [RETURN]. The records of the students in the selected group are then deleted completely from the system, and you are returned to the management menu.

- WARNING: Make sure that you have correctly selected students before typing "YES." Once these records are erased, it is impossible to retrieve them. If you do not really wish to erase all students in the selected group, type "NO" and [RETURN].

If you decide you do not want to erase any student records after all, press [ESC] to return to the management menu.

Update Student Progress

Update Student Progress is used to enter your students' scores on survey tests, exercises, reviews, and mastery tests for each strand. When you choose this function and have selected the group of students whose progress records you wish to update, the first student's name is displayed along with a list of the strands in *CSP*. Use the arrow keys to position the cursor to the left of the strand with which the student is working, and press [RETURN]. The next screen shows a list of all possible assignments in the strand. Next to each assignment is its status. Status codes for the various activity types are described below. To enter the score for a particular assignment, use all four arrow keys to position the cursor to that assignment, and press [RETURN].

At the bottom of the screen, you are asked for the student's score; type the score, and press [RETURN]. The status code is returned next to the assignment.

- Survey Tests: When you enter a score for a survey, you are also asked for the date the student started work in the strand. Enter the date in the format DD-MMM-YY, and press [RETURN]. The status of the survey test is reported as "T," for taken. The status of the appropriate skill exercises will also be filled in as "S," to indicate, based on the survey test scores, that the student has mastered these skills.
- Exercise: Scores entered for an exercise will be reported as either "M," for mastered, or "F," for failed. Mastery level is set at 80%. If a student fails an exercise three times, a message appears noting that the student needs help with that skill.
- Review: When you enter a score for a review, the status is always returned as "T," for taken, since scores on reviews do not affect a student's progress through the strand.
- Mastery Test: As with an exercise, the status of a mastery test is returned as "M," for mastered, or "F," for failed, again with mastery level set at 80%.

When you have finished entering the student's score(s) for assignments in that strand, use the arrow keys to position the cursor to the "CONFIRM" field near the bottom of the screen, and press [RETURN]. The student's scores are stored on the disk, and you are returned to the strand menu for the same student. Pressing [ESC] returns the program to the strand menu without storing the scores.

Enter scores for this student in other strands in the same way. To move on to the next student, select the "Update Completed" option. When the records of all students in the selected group have been updated, you are returned to the management menu. Press [ESC] to return to it before you have gone through all selected students.

Report Student Status

Report Student Status provides, on either the computer screen or an attached printer, a report of students' progress through each strand. When you choose this function, you must select the group of students for whom you want status reported. If you have a printer card installed in slot 1 of the computer, you are asked if you wish the report to be printed on the screen or on the printer. Use the up and/or down arrow keys to position the cursor to the left of the desired option, and press RETURN. If you do not have a printer card installed, the report is automatically displayed on the screen.

For each student in the selected group, the report shows the status of activity in each strand in which the student has done any work. Below the student's name and grade level is strand information in four columns: the Strand; the Start Date, which is the date entered when the survey test score was entered; Mastered Skills, which include skills mastered as indicated by the survey test as well as those mastered by progression through the exercises; and Status, which indicates the student's next assignment (for example, "Ready for skill 3 exercise 2"). If all skills in the strand have been mastered, this is indicated in the Status column by the phrase, "Strand has been mastered."

If the report is being printed on the printer, the entire report is printed, and the management menu is then displayed on the screen. If the report is being printed on the screen, only as much information as the screen can hold is printed at a time. When you wish to see the next screen of the report, press SPACE. When you press SPACE after the last screen of information has been displayed, you are returned to the management menu. If you wish to return to it before the report has finished, press ESC.

STATUS REPORT FOR Mr. Ashe, Period 4
REPORT DATE 27-FEB-86

NAME Brown, William GRADE LEVEL 5

Strand	Start Date	Mastered Skills	Status
WM	21-SEP-85	1, 2, 3, 4, 5, 6, 7, 8,	Ready for skill 9 exercise 3
WD	03-JAN-86	1, 2, 3, 4, 5, 6	Needs help on skill 7 exercise 2

NAME Cameron, Lacey GRADE LEVEL 5

Strand	Start Date	Mastered Skills	Status
WM	21-SEP-85	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Strand has been mastered
WD	03-JAN-86	1, 2, 3, 4, 5	Ready for review 1
FB	14-FEB-86		Ready for skill 1 exercise 1

NAME Goodwin, Matthew GRADE LEVEL 5

Strand	Start Date	Mastered Skills	Status
WM	22-SEP-85	1	Ready for skill 2 exercise 3
WD	02-FEB-86	1	Needs help on skill 2 exercise 3

NAME Grayson, Melinda GRADE LEVEL 5

Strand	Start Date	Mastered Skills	Status
WM	21-SEP-85	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Ready for mastery test
WD	01-OCT-85	1, 2, 3, 4, 5, 6, 7, 8	Ready for skill 9 exercise 1

List Students

List Students provides an alphabetical report of students' names and grade levels. Proceed with this function in the same manner described in Report Student Status.

STUDENT LIST REPORT DATE 27-FEB-86

Mr. Ashe, Period 4 GRADE LEVEL

Brown, William	5
Cameron, Lacey	5
Goodwin, Matthew	5
Grayson, Melinda	5
Keeler, Melissa	5
Marcoulier, Amanda	5
Marcus, Leslie	5
Perez, Sylvia	5
Robertson, Andrew	5
Schwartz, Jonathan	5
Wilcox, Jerome	5

Assign Group Name

Assign Group Name allows you to assign a name to the group of students on one disk and also to change the group name once assigned. If such a name is assigned, it is printed at the beginning of both reports. When you choose this function for the first time, you are prompted to enter the group name, which may not exceed eighteen characters. If a name had previously been assigned, the current name is displayed, with the cursor positioned at the end of the name. To change it, use DELETE to erase characters, and type the new name. When the name has been entered, press the down arrow key to position the cursor to the "CONFIRM" field. At this point, you may either press RETURN to have the new name stored on the disk and return to the

management menu, or use the up arrow key to go back and change the name. If you press ESC while in Assign Group Name, you will be returned to the management menu, and the new group name will not be stored.

Exit Management

The *CSP* management disk is not copy protected—a feature that allows you to make multiple copies to organize and group your students on separate disks. With multiple copies of the management disk, you must use the Exit Management function to end your work on one disk before starting on the next. Once you select the function, you will be instructed to remove the current disk and insert the new one.

- WARNING: Make sure that you have correctly followed the Exit Management procedures when using multiple disks. Failure to do so may result in lost student records.

WHOLE NUMBERS ADDITION

SURVEY TEST	
Skill 1	Using basic facts, add two numbers with sums to 18.
Skill 2	Using basic facts, add three numbers with sums to 9.
Skill 3	Add three 1-digit numbers with sums of 10 or more.
Skill 4	Add two numbers with no renaming, using 1- and 2-digit numbers.
REVIEW: Skills 1–4	
Skill 5	Add two numbers, renaming ones, using 1- to 4-digit numbers.
Skill 6	Add two numbers, renaming tens, using 2- to 4-digit numbers.
Skill 7	Add two numbers, renaming ones and tens, using 2- to 4-digit numbers.
Skill 8	Add three or more numbers, renaming ones and tens, using 2- to 4-digit numbers.
Skill 9	Add two or more numbers, renaming as necessary, using 4- to 6-digit numbers.
REVIEW: Skills 5–9	
MASTERY TEST	

WHOLE NUMBERS SUBTRACTION

SURVEY TEST	
Skill 1	Use the basic addition facts to subtract a number between 0 and 9 from a number between 0 and 9.
Skill 2	Use the basic addition facts to subtract a number between 0 and 9 from a number between 10 and 18.
Skill 3	Subtract a 1- or 2-digit number from a 2-digit number with no renaming.
Skill 4	Subtract a 1- to 3-digit number from a 3-digit number with no renaming.
REVIEW: Skills 1–4	
Skill 5	Subtract a 1- to 3-digit number from a 2- or 3-digit number, renaming tens.
Skill 6	Subtract a 2- or 3-digit number from a 3-digit number, renaming hundreds.
Skill 7	Subtract a 3- or 4-digit number from a 4-digit number, renaming hundreds.
Skill 8	Subtract a 2- or 3-digit number from a 3-digit number, renaming tens and hundreds.
Skill 9	Subtract a 3- or 4-digit number from a 4-digit number, renaming tens and hundreds.
Skill 10	Subtract a 4- or 5-digit number from a 5- or 6-digit number, with renaming.
REVIEW: Skills 5–10	
MASTERY TEST	

WHOLE NUMBERS MULTIPLICATION

SURVEY TEST	
Skill 1	Using basic facts, multiply two 1-digit numbers.
Skill 2	Multiply a 2- or 3-digit number by a 1-digit number with no renaming.
Skill 3	Multiply a 2- or 3-digit number by a 1-digit number, renaming ones.
Skill 4	Multiply a 2-digit number by a 1-digit number, renaming ones and tens.
Skill 5	Multiply a 3- or 4-digit number by a 1-digit number, renaming as necessary.
REVIEW: Skills 1–5	
Skill 6	Multiply a 2- to 4-digit number by a 2-digit multiple of 10.
Skill 7	Multiply a 3- or 4-digit number by a 3-digit multiple of 100.
Skill 8	Multiply a 4- or 5-digit number by a 4-digit multiple of 1000.
Skill 9	Multiply two 2-digit numbers.
Skill 10	Multiply a 3- or 4-digit number by a 2-digit number.
Skill 11	Multiply a 3- or 4-digit number by a 2- to 4-digit number.
Skill 12	Multiply a 3- or 4-digit number by a 3-digit number, using numbers with one or more zeros.
REVIEW: Skills 6–12	
MASTERY TEST	

WHOLE NUMBERS DIVISION

SURVEY TEST	
Skill 1	Divide a 2-digit number by a 1-digit number with a 1-digit number or 10 in the quotient with no remainder.
Skill 2	Divide a 2-digit number by a 1-digit number with no remainder.
Skill 3	Divide a 3-digit number by a 1-digit number with no remainder.
Skill 4	Divide a 3- or 4-digit number by a 1-digit number with no remainder.
Skill 5	Divide a 2- to 4-digit number by a 2-digit number with no remainder.
REVIEW: Skills 1–5	
Skill 6	Divide a 1- to 4-digit number by a 1- or 2-digit number with a remainder.
Skill 7	Divide a 3- to 6-digit number by a 2- or 3-digit number with a remainder.
Skill 8	Divide a 2- to 4-digit number by a 1- to 3-digit number and write the remainder as a fraction.
Skill 9	Divide a 2- to 4-digit number by a 1- or 2-digit number and write the answer as a decimal.
REVIEW: Skills 6–9	
MASTERY TEST	

FRACTIONS BASIC SKILLS

SURVEY TEST	
Skill 1	Write a fraction to represent a given part of a whole unit.
Skill 2	Identify that part of a whole unit represented by a given fraction.
Skill 3	Write a fraction to represent what part a given number of objects is of a total group of objects.
Skill 4	Identify the number of objects in a group of objects as represented by a given fraction.
REVIEW: Skills 1–4	
Skill 5	Find the factors of a number.
Skill 6	Find the Greatest Common Factor (GCF) of two or more numbers.
Skill 7	Change fractions and mixed numbers to lowest terms.
REVIEW: Skills 5–7	
Skill 8	Write consecutive multiples of a number.
Skill 9	Find the Least Common Multiple (LCM) of two or more numbers.
Skill 10	Find the Least Common Denominator (LCD) for two or more fractions.
Skill 11	Change fractions to higher terms.
Skill 12	Write two or more fractions with a Least Common Denominator (LCD).
REVIEW: Skills 8–12	
Skill 13	Write whole numbers or mixed numbers as improper fractions.
Skill 14	Write improper fractions as whole numbers or mixed numbers.
Skill 15	Rename a whole number or mixed number as an equivalent mixed number.
REVIEW: Skills 13–15	
MASTERY TEST	

FRACTIONS ADDITION

SURVEY TEST	
Skill 1	Add fractions with like denominators.
Skill 2	Add mixed numbers with like denominators (no renaming).
Skill 3	Add mixed numbers with like denominators (with renaming).
REVIEW: Skills 1–3	
Skill 4	Add fractions with unlike denominators.
Skill 5	Add mixed numbers with unlike denominators.
REVIEW: Skills 4–5	
MASTERY TEST	

FRACTIONS SUBTRACTION

SURVEY TEST	
Skill 1	Subtract fractions with like denominators.
Skill 2	Subtract mixed numbers with like denominators (no renaming).
Skill 3	Subtract a fraction or mixed number from a whole number (with renaming of whole numbers).
Skill 4	Subtract mixed numbers with like denominators (with renaming).
REVIEW: Skills 1–4	
Skill 5	Subtract fractions with unlike denominators.
Skill 6	Subtract mixed numbers with unlike denominators.
REVIEW: Skills 5–6	
MASTERY TEST	

FRACTIONS MULTIPLICATION

SURVEY TEST	
Skill 1	Multiply unit fractions.
Skill 2	Multiply fractions where both numerators do not equal 1.
Skill 3	Multiply a whole number and a fraction.
REVIEW: Skills 1–3	
Skill 4	Multiply a mixed number and a fraction.
Skill 5	Multiply a mixed number or a whole number by a mixed number.
REVIEW: Skills 4–5	
MASTERY TEST	

FRACTIONS DIVISION

SURVEY TEST	
Skill 1	Divide a whole number by a unit fraction.
Skill 2	Divide a whole number by a fraction.
Skill 3	Divide a fraction by a fraction.
REVIEW: Skills 1–3	
Skill 4	Divide a mixed number by a fraction.
Skill 5	Divide a fraction or a mixed number by a whole number.
Skill 6	Divide a whole number or a fraction or a mixed number by a mixed number.
REVIEW: Skills 4–6	
MASTERY TEST	

DECIMALS

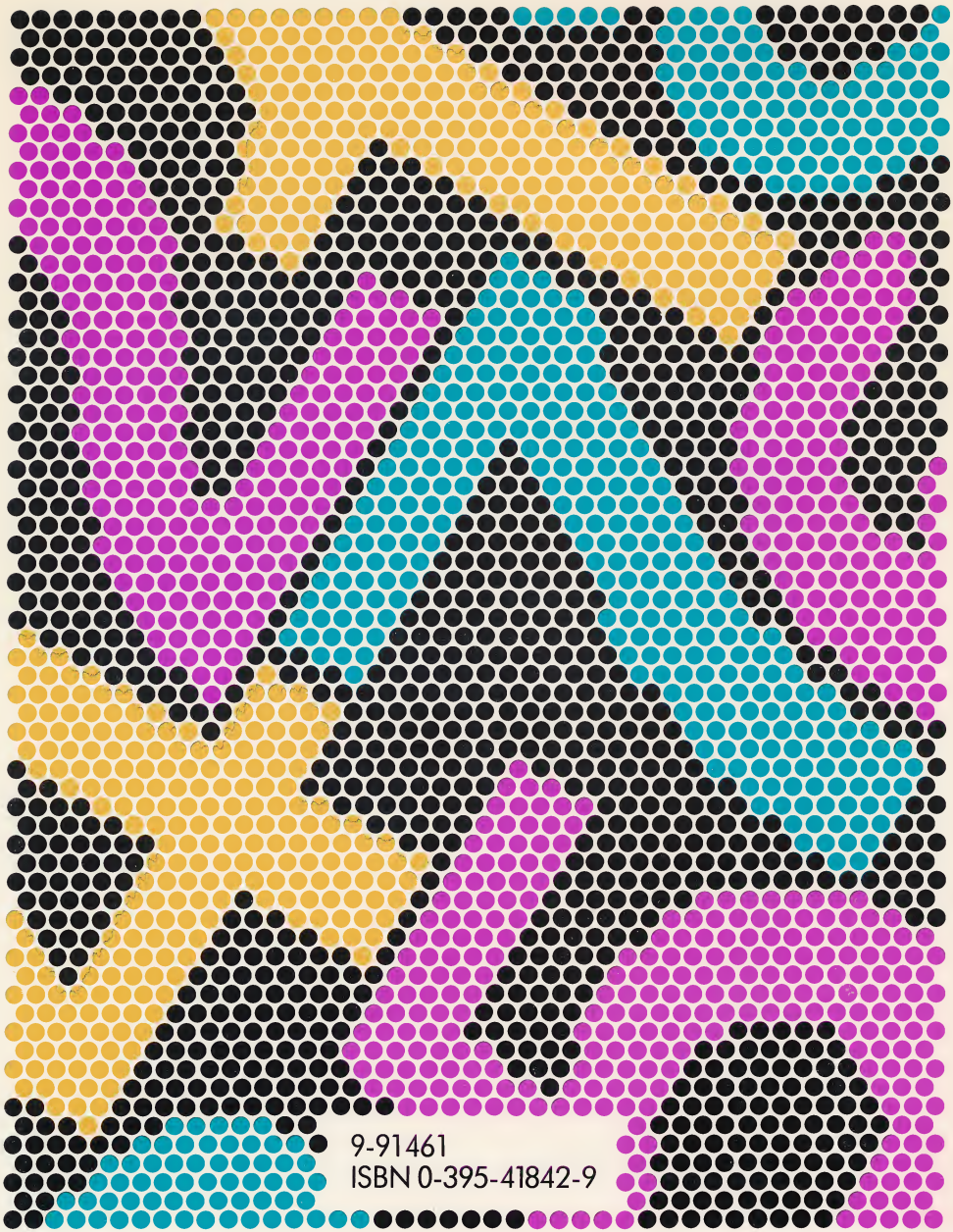
SURVEY TEST	
Skill 1	Write decimals to ten-thousandths.
Skill 2	Round decimals to the nearest tenth, hundredth, and thousandth.
Skill 3	Write whole numbers, fractions, and mixed numbers as decimals.
Skill 4	Write decimals as fractions and mixed numbers.
REVIEW: Skills 1–4	
Skill 5	Add decimals to ten-thousandths with no renaming.
Skill 6	Add decimals to ten-thousandths with renaming.
Skill 7	Subtract decimals to ten-thousandths with no renaming.
Skill 8	Subtract decimals to ten-thousandths with renaming.
REVIEW: Skills 5–8	
Skill 9	Multiply a decimal by a whole number.
Skill 10	Multiply a decimal by a decimal.
Skill 11	Divide a decimal by a whole number.
Skill 12	Divide a decimal by a decimal.
REVIEW: Skills 9–12	
MASTERY TEST	

RATES, RATIOS AND PROPORTIONS

SURVEY TEST	
Skill 1	Write ratios in simplest form, using "TO," a colon (:), or a fraction.
Skill 2	Write rates in simplest form, using a fraction.
Skill 3	Find unit rates.
REVIEW: Skills 1–3	
Skill 4	Determine if proportions are true.
Skill 5	Solve true proportions.
Skill 6	Write equal rates as a proportion, then solve.
REVIEW: Skills 4–6	
MASTERY TEST	

PERCENTS

SURVEY TEST	
Skill 1	Rewrite whole number percents up to 100% in fractional or decimal form.
Skill 2	Rewrite whole number percents larger than 100% in fractional or decimal form.
Skill 3	Rewrite percents less than 1% in fractional or decimal form.
Skill 4	Rewrite mixed number and decimal percents in fractional or decimal form.
REVIEW: Skills 1–4	
Skill 5	Rewrite decimals as percents.
Skill 6	Rewrite fractions as percents.
Skill 7	Rewrite whole numbers and mixed numbers as percents.
REVIEW: Skills 5–7	
Skill 8	Find a percentage of a given number.
Skill 9	Find what percent one number is of another number.
Skill 10	Find a number if a percentage of the number is known.
REVIEW: Skills 8–10	
MASTERY TEST	



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